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## Nothernmost geographical distribution of *Veleva veleva* (Hydrozoa: Porpitiidae) in the Middle of the North Pacific

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**Abstract.** The northernmost distribution of *Veleva veleva* (Hydrozoa: Porpitiidae) is recorded in the middle of the North Pacific (39° 57.87' N, 157° 40.46' W). The specimen with symbiotic algae is rather large (63 mm in length, 38 mm in width) and mature despite of the low temperature.

**Key words:** *Veleva*, occurrence, North Pacific, mature, symbiotic algae, temperature.

### Introduction

*Veleva veleva* (Linnaeus, 1758), by-the-wind-sailor, is floating on the sea surface and distributed in the temperate to tropical zone of the Pacific mainly along the warm current except tropical middle zone of the North Pacific (Bieri, 1977). It is sometimes stranded on the Japanese coasts in spring to autumn, and all the specimens are small (Bieri, 1970; Kubota, 2003, 2004). We found a large specimen in cool waters in the middle of the North Pacific as the northernmost distributional record there and reported its occurrence.

### Description

The specimen (Fig. 1) was collected by a net on board (Fig. 2: 39° 57.87' N, 157° 40.46' W) and photographed, then preserved in the formalin

seawater in situ soon after collection on June 24, 2010. The specimen, 63 mm in length and 38 mm in width, is blue in color and matured bearing many medusa buds. Many symbiotic algae were found inside the medusa buds despite the water temperature is rather cold (14.6°C) in a cool region (air temperature is 16.3°C).

### Remarks

In the western north Pacific, *Veleva* is usually up to 60 mm in length (Bieri, 1977: p. 66), therefore the present specimen is rather large, but in the eastern north Pacific it is up to 105 mm in length (Bieri, 1977: p. 65) and grows bigger than the former. On the other hand, it is often reported that coral bleaching was induced by low water temperatures, for example in Kii Peninsula, this has been confirmed three times since 1971 due to a long lasting under 14°C (20 days or more) (Nomura, 2004). It is assumed that the present large specimen may be carried to the finding site by the Kuroshio around the col-

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lected date judging from its size and possession of symbiotic algae.



Fig. 1. The large specimen of *Veleva veleva* collected in the middle of the North Pacific (in life, 63 mm in length).

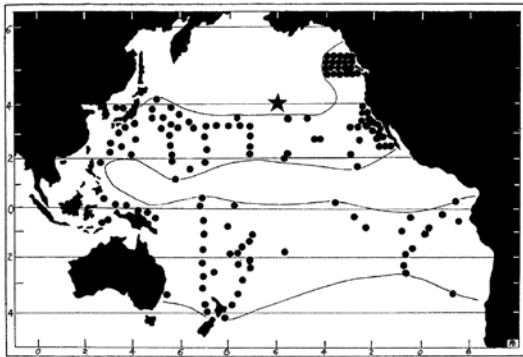


Fig. 2. Geographical distribution of *Veleva veleva* (after Bieri, 1977) and the present record (★).

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